Dranetz

626-PA-645

qp-vol.1

TM-111027u-1

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WARNING

Because of possible shock or fire hazards, connection of this instrument should be performed in compliance with the National Electrical Code (ANSI C1) and/or any other requirements which may be applicable to the user.

Installation, operation, and maintenance should be performed only by qualified personnel.

TM-111027U-1

VOLUME 1

OPERATOR'S MANUAL

626-PA-6015 3-CHANNEL TRANSDUCER MONITOR

NOTE

Refer to Volume 2 (Service Manual) of TM-111027U for maintenance data.

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(Rev. B)

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TABLE OF CONTENTS

626-PA-6015 3-CHANNEL TRANSDUCER MONITOR

VOLUME 1

Section			Page
I	GENERAL INFORMATION		
	1.1	Scope	1-1
	1.2	Introduction.	1-1
	1.3	Purpose	1-1
	1.4	Applications.	1-2
	1.5	Equipment Characteristics	1-2
	1.6	Standard Accessories.	1-2
	1.7	Optional Accessories.	1-2
	1.8	Factory Repair.	1-4
II	INSTALLATION AND OPERATION		
	2.1	Installation.	2-1
	2.2	Load Ratings.	2-1
	2.3	Connecting the Cables to the Module . . .	2-2
	2.4	Operating the 6015.	2-2
	2.4.1	Programming Procedure	2-4
	2.5	Selecting the Factory/Option 101 Preset Program.	2-9
	2.6	Description of Data Printouts	2-9
	2.6.1	Over Limit.	2-9
	2.6.2	Under Limit	2-10
	2.6.3	Voltage Change.	2-10
	2.6.4	Data Summary.	2-11
	2.7	Printout Modes.	2-12
	2.8	Short Term Accumulator.	2-14
	2.9	Assembling Cables for the 626-PA-6015 . .	2-14
III	OPERATIONAL CHECK		
	3.1	General	3-1
	3.2	System Check.	3-1

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LIST OF ILLUSTRATIONS

Figure		Page
2-1	Series 626 Controls Used by the 6Ø15 Plug-In	2-3
2-2A	Typical Program Summary Printout - Model 626	2-7
2-2B	Typical Program Summary Printout - Model 626A. . . .	2-8
2-3A	Typical Data Summary Printout - Model 626.	2-11
2-3B	Typical Data Summary Printout - Model 626A	2-12
2-4	Examples of Printout Modes	2-13

LIST OF TABLES

Table		Page
1-1	626-PA-6Ø15 Technical Specifications	1-3
2-1	6Ø15 Operating Controls.	2-2

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IMPORTANT! CALIBRATION INTERVAL

The recommended calibration interval for this unit is once every 12 MONTHS.

We recommend that you return the unit to the factory for calibration. If you decide to do so, first contact the Dranetz Customer Service Department to obtain an authorization number.

Telephone Number:	(201) 287-3680
Telex Number:	499-7808
TWX Number:	(710) 997-9553
FAX Number:	(201) 248-9240
Cable:	DRANETZ

Then fill out the Repair/Service Order form enclosed in this manual and ship it along with the unit to the Dranetz Customer Service Department. (If this form is missing, ask the Dranetz Customer Service Department for a replacement.)

STATEMENT OF WARRANTY

ALL PRODUCTS OF DRANETZ TECHNOLOGIES, INC. ARE WARRANTED TO THE ORIGINAL PURCHASER AGAINST DEFECTIVE MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF DELIVERY. DRANETZ WILL REPAIR OR REPLACE, AT ITS OPTION, ALL DEFECTIVE EQUIPMENT RETURNED, FREIGHT PREPAID, DURING THE WARRANTY PERIOD, WITHOUT CHARGE FOR REPAIR, PROVIDED THERE IS NO EVIDENCE THAT THE EQUIPMENT HAS BEEN MISHANDLED OR ABUSED. THIS WARRANTY SHALL NOT APPLY TO ANY DEFECTS RESULTING FROM IMPROPER OR INADEQUATE MAINTENANCE, BUYER-SUPPLIED HARDWARE/SOFTWARE OR INTERFACING, UNAUTHORIZED MODIFICATION OR MISUSE OF THE EQUIPMENT, OPERATION OUTSIDE OF THE ENVIRONMENTAL SPECIFICATIONS FOR THE PRODUCT, OR IMPROPER SITE PREPARATION OR MAINTENANCE.

The information in this manual has been reviewed and is believed to be entirely reliable. No responsibility, however, is assumed for any inaccuracies. The material in this manual is for information purposes only, and is subject to change without notice.

VOLUME 1
OPERATOR'S MANUAL

626-PA-6Ø15 3-CHANNEL TRANSDUCER MONITOR

SECTION I
GENERAL INFORMATION

1.1 SCOPE

This manual consists of two volumes. Volume 1, the Operator's manual, consists of three sections: I) GENERAL INFORMATION, II) INSTALLATION AND OPERATION, and III) OPERATIONAL TEST. Volume 2, the Service manual, contains the maintenance instructions (Sections IV through VII).

1.2 INTRODUCTION

This manual provides operating instructions for the 626-PA-6Ø15 3-Channel Transducer Monitor plug-in, hereinafter referred to as the 6Ø15. The 6Ø15 is designed for installation in the Series 626 Universal Disturbance Analyzer. It is assumed that the reader is familiar with the mainframe information presented in Volume 1 of the Mainframe manual.

1.3 PURPOSE

The 6Ø15 is a three input (channel) module which monitors DC voltages from Ø to 1ØV. It is designed to monitor standard Ø-1Øvdc transducer outputs. For each input, the user may select the engineering units (i.e., BTU, RPM, PSI, etc.) as well as the full scale value--from 1 to 99ØØ--which is equivalent to 1Ø Vdc input. With thresholds programmed by the user, the 6Ø15 stores, analyzes, classifies and prints out quantitative and qualitative disturbance data. Accompanying the data is a printout of time derived from a highly accurate crystal-controlled 24-hour clock in the mainframe.

The 6Ø15 monitors and records changes on any of its three inputs based upon user programmable sensitivities, and high and low limits. Each input (channel) takes four readings over a Ø.24 second period and then averages the readings to determine if a threshold or limit crossing has occurred. The sensitivity value of each type of disturbance, above which detection and printout occurs, is operator programmable. Except for an automatic summary printout at the end of each day, disturbance data is normally printed out only when disturbances occur. In the Summary Mode, a disturbance summary printout occurs only at the end of each day. This feature permits long term unattended operation.

The threshold program may be easily altered, using the front panel switches. Cueing indicators adjacent to the programming switches simplify the programming procedure. A back-up program for the plug-in, stored in hard memory at the factory, may always be recalled upon operator demand. Both the program and the disturbance data in the data accumulators may be printed out upon demand.

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1.4 APPLICATIONS

When installed in the 626 mainframe, the 6015 provides the capability to monitor several different types of transducers simultaneously, while also providing correlation to other type disturbances, such as voltage, depending on the other plug-in modules present in the mainframe. Among its typical applications are the following:

a. Input A is connected to the output of a standard 0-10 Vdc pressure transducer, whose full scale output is 2000 PSI. The reading should normally be between 1500 and 1700 PSI. The 6015 Input A is programmed so that Full Scale = 2000, Lo Limit = 1700, Sensitivity = 10, and the units are PSI.

b. Input B is used to monitor a DC power supply. The voltage output should be 2.00±40 mV. The full scale value would, therefore, be programmed to 10.000, the Hi Limit to 02.05, the Lo Limit to 1.95, the Sensitivity to 00.02 and the Units to "V".

c. A 0-5 Vdc flow transducer (max CFM = 600) is used in a pipeline, whose flow rate is normally 450 CFM. The variance must be less than ±25 CFM. Since Input C has a full scale input voltage of 10 Vdc, the corresponding programmed Full Scale value would be 1200, Hi Limit equal to 475, Lo Limit equal to 425, a Sensitivity of 5 and the Units would be CFM.

1.5 EQUIPMENT CHARACTERISTICS

The 6015 is configured as a plug-in module 6.5" high by 1.25" wide by 10" deep. It is designed for installation in any one of the five slots of the Series 626 Universal Disturbance Analyzer. Technical specifications of the 6015 are listed in Table 1-1.

1.6 STANDARD ACCESSORIES

Model No.	Part No.	Quan.	Description
626PA6015	TM-111027U, Vol. 1	1	Operator's Manual

1.7 OPTIONAL ACCESSORIES

Model No.	Part No.	Quan.	Description
626PA6015	TM-111027U, Vol. 2	1	Service (Maintenance) Manual

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Table 1-1. 626-PA-6015 Technical Specifications

Accuracy of 0-10 Vdc input:	±0.2% of reading ±0.3% of F.S. ±.01% (t-25) for reading >5% of F.S. and <10.00V
Common Mode Rejection:	±350Vdc either input to chassis ground
Input Impedance:	Differential = 10 Megohm min Common mode = 50 Gigohm typical
Readings:	4 readings, averaged over 0.24 seconds
Output digit format:	5 digits, range dependent on full scale (X.XXXX, XX.XXX, XXX.XX, XXXX.X, XXXXX.)

Programmable parameters: (selectable independently for each channel)

1) Full scale value (XXX = 10.00 vdc input)
User specifies exponent and 3 digits

Exponent	Range	Format
0	1 to 9.99	X.XX00
1	10 to 99.9	XX.X00
2	100 to 999	XXX.00
3	1000 to 9990	XXX0.0
4	10000 to 99900	XXX00.

2) Hi Limit (user specifies 4 digits)
Range: Lo Limit +.1% of F.S.<=Hi Limit<=F.S.

3) Lo Limit (user specifies 4 digits)
Range: 0<=Lo Limit<Hi Limit-.1% of F.S.

4) Sensitivity (user specifies 4 digits)
Range: .1% of F.S.<=Sens<Full Scale

5) Engineering units: user specifies one for each channel from the following:
V, A, OHM, %RH, C, F, PSI, V/M, BTU, CFM, RPM, FTC, KG, LB, PPM, PH, FT, M, WHR, MV, (blank).

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1.8 FACTORY REPAIR

When factory repair is required, proceed as follows:

1. Contact the Dranetz Customer Service Department in order to obtain an authorization number for factory repair:

   Telephone No: (201) 287-3680

   TWX: (710) 997-9553

   FAX: (201) 248-9240

   Telex: 499-7808

   Cable: DRANETZ

2. Fill out the REPAIR/SERVICE ORDER form enclosed in the Series 626 Operating manual. Ship it along with the malfunctioning equipment to the Dranetz Customer Service Department.

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SECTION II
INSTALLATION AND OPERATION

2.1 INSTALLATION

CAUTION

Be sure 626 is turned off and that all power connected to all plug-in modules is turned off.

To install the 6015 in the mainframe, proceed as foolloows:

a. Position the top and bottom rear corners of the plug-in module in the upper and lower tracks at the desired slot position at the rear of the mainframe.

b. Carefully slide the module into the mainframe until it is firmly seated.

c. Tighten the top and bottom captive screws to secure the module to the mainframe.

2.2 LOAD RATINGS

The Series 626 standard mainframe has an upper limit of the combined total rating of the installed modules. The overall mainframe capacity is set at 20 units, and individual modules have load ratings as follows:

Plug-in	Load Rating	Plug-in	Load Rating
626-PA-6001	2 Units	626-PA-60012A	3 Units
626-PA-6001 with Extra Option Board	3 Units	626-PA-6013	2 Units
		626-PA-6014	1 Unit
		626-PA-6015	4 Units
626-PA-6002	2 Units	626-PA-6018	4 Units
626-PA-6003	4 Units	626-PA-6020	4 Units
626-PA-6005	2 Units	626-PA-6024A	4 Units
626-PA-6006	2 Units	626-PA-6024B	4 Units
626-PA-6007	1 Unit	626-PA-6025	4 Units
626-PA-6008	2 Units	626-PA-6030	6 Units
626-PA-6009	4 Units	626-PA-6037	1 Unit
626-PA-6011	1 Unit	626-PA-6038	1 Unit
626-PA-6012	2 Units	626-PA-6040	6 Units

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NOTE

When selecting modules for installation into any Series 626 Mainframe, verify that the sum of the load ratings of the installed modules DOES NOT exceed 20 Units.

2.3 CONNECTING THE CABLES TO THE MODULE

The 6015 is supplied with three connectors on the rear panel. Proceed as follows:

a. Insert key in FUNCTION key switch on the front panel of the mainframe and set switch to OFF position.

b. Connect the three wired connectors to the rear panel connectors.

2.4 OPERATING THE 6015

The functions of the mainframe operating controls and indicators associated with the 6015 are described in Table 2-1. Figure 2-1 shows the typical front panel controls associated with a 6015. For a description of controls common to overall Series 626 operation, refer to Volume 1 of the Mainframe manual.

Table 2-1. 6015 Operating Controls

Item	Function
INPUT pushbuton	When depressed (when the red LED next to it is lit) it allows the user to select which input is to be programmed.
NUMERIC pushbuttons	When single lamp lights, user is cued to press a "1" thru "3" for inputs A thru C, respectively. Also used to enter numerical values for other functions.
LO LIMIT pushbutton	When depressed, enables the numeric keyboard to program low limit for selected input.
HI LIMIT pushbutton	When depressed, enables the numeric keyboard to program high limit for selected input.
SENS pushbutton	When depressed, enables the numeric keyboard to program sensitivity for selected input.

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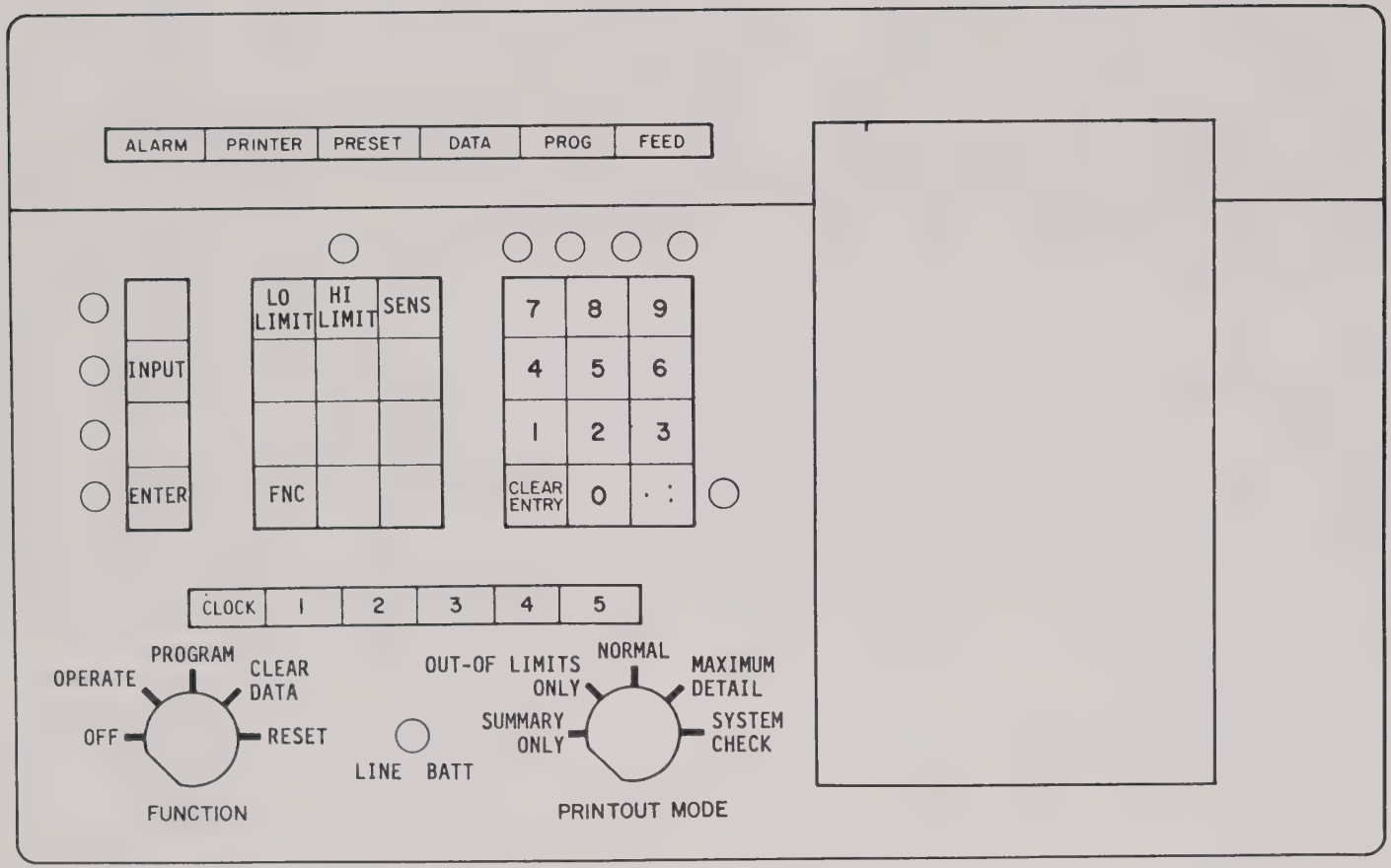

Figure 2-1. Series 626 Controls Used by the 6015 Plug-In

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Table 2-1. 6015 Operating Controls (Cont'd)

Item	Function
FNC pushbutton	When depressed, allows the user to program either full scale value, or engineering units for the input selected, by then depressing a "1" or "2".
ENTER pushbutton	When depressed, transfers numeric keyboard values into 6015 memory for processing.
DATA pushbutton	When depressed, produces a data summary printout.
PROG pushbutton	When depressed, produces a program summary printout
PRESET pushbutton	With FUNCTION switch set to PROGRAM and a channel switch (1-5) depressed, PRESET switch recalls non-volatile factory program for that channel.

2.4.1 Programming Procedure

Assume it is desired to program Input B as follows:

Full Scale = 5500.0
High Limit = 4320.0
Low Limit = 3034.0
Sensitivity = 0010.0
Engr. Units = PSI

a. Set FUNCTION switch to PROGRAM.

b. Depress the channel pushbutton (1-5) that corresponds to the slot position of the plug-in to be programmed. Note that a program summary for that channel is immediately printed . For the 6015, the engineering units menu is printed after the initial program summary as follows:

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626

```
   =20
WHR=18     MV =19
FT =16     M  =17
PPM=14     PH =15
KG =12     LB =13
RPM=10     FTC=11
BTU=08     CFM=09
PSI=06     V/M=07
C  =04     F  =05
OHM=02     %RH=03
V  =00     A  =01
```

626A,G,R,ARA

```
V  =00     A  =01
OHM=02     %RH=03
C  =04     F  =05
PSI=06     V/M=07
BTU=08     CFM=09
RPM=10     FTC=11
KG =12     LB =13
PPM=14     PH =15
FT =16     M  =17
WHR=18     MV =19
   =20
```

c. Note that the red LED next to the INPUT pushbutton is now lit. the INPUT key must then be pressed. Note that the following prompt message is printed and a single yellow LED is lit.

626

```
INPUTS A,B,C
ENTER: 1,2,3 FOR
```

626A,G,R,ARA

```
ENTER:  1,2,3 FOR
INPUTS A,B,C
```

d. Depress a "1", "2", or "3", depending on which input you wish to change. Note that the green LED adjacent to the ENTER key is lit, waiting for the ENTER key to be depressed. (Assume a "2" was depressed for the following example).

e. When the ENTER indicator goes out after it is depressed, an indicator above the center bank of pushbuttons lights. This indicates that one of the functions (FNC, HI LIMIT, LO LIMIT, SENSITIVITY) may now be programmed. At this time the PRESET button could also be depressed to change all of the parameters for all three inputs to factory-preset values.

f. Depress the FNC (function) key. Note that a single yellow LED lights, along with the following message:

626

```
FNC2=UNITS
FNC1=FULL SCALE
```

626A,G,R,ARA

```
FNC1=FULL SCALE
FNC2=UNITS
```

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g. Depress a "1", followed by ENTER to invoke the full scale setup routine. Note the following message informing the user as to the selection of the exponent for the full scale value then appears:

626	626A,G,R,ARA
XXX00.=4	EXP:
XXX0.0=3	X.XX00=1
XXX.00=2	XXX.00=2
X.XX00=1	XXX0.0=3
EXP:	XXX00.=4

h. A single yellow LED is lit again. The user then enters a "3", to select a full scale range in the thousands range. This is then followed by 3 yellow LEDs being lit, instructing the user to enter the three digits corresponding to the X's in the above printout. In this example, "550" is entered. If an error is made, depress CLEAR ENTRY and then the correct entry.

i. When the value is entered, the lamp next to the ENTER pushbutton lights. Depress this pushbutton to enter the value.. The minimum full scale value that may be entered is 1, 0, 0 -- 1.00, 10.0, etc. Note that the unit echoes the following message:

F.S.=550

j. After repeating steps c-e, depress the HI LIMIT pushbutton.

k. Note that four yellow LEDS above the numeric keyboard are now lit. Enter 4320 using the keyboard. The ENTER key must again be depressed and an echo of the values entered will again result. Note that values less than 1000 must have leading zero(es) entered.

l. Repeat steps c-e, j-k for the low limit value (3034), using the LO LIMIT pushbutton.

m. Repeat steps c-e, j-k for the sensitivity value (0010), using the SENS pushbutton.

n. The same sequence is used to change any input, provided that the appropriate number is entered in step c.

o. Lastly, select the engineering units "PSI" by first depressing the FNC key in step f. Refer to the menu selection printed out, following the first program summary when program mode was first entered.

p. After the single yellow LED is lit, press "2". Note that the following prompt message is printed:

ENTER UNITS

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q. Two yellow LEDs will now be lit, signifying that the 2-digit code for the particular type units selected from the menu should be entered, in this instance an "Ø6", followed by an ENTER.

r. The completed program printout should take the form shown in figure 2-2A (for the Model 626) or figure 2-2B (for the Model 626A).

```
F.S.=1Ø.ØØØ V
HI LMT=Ø5.2ØØ V
LO LMT=Ø4.5ØØ V
SENS=ØØ.1ØØ V
  INPUT C

F.S.=55ØØ.Ø PSI        Full scale value (1ØV) of 55ØØ PSI
HI LMT=4320.Ø PSI      High Limit of 432Ø PSI
LO LMT=3Ø34.Ø PSI      Low limit of 3Ø34 PSI
SENS=ØØ1Ø.Ø PSI        Sensitivity of 1Ø PSI
  INPUT B

F.S.=1Ø.ØØØ V
HI LMT=Ø5.2ØØ V
LO LMT=Ø4.5ØØ V
SENS=ØØ.1ØØ V
  INPUT A

626-PA-6Ø15
    CH2

PROGRAM SUMMARY
```

Figure 2-2A. Typical Program Summary Printout - Model 626

NOTE

The instrument is designed to detect an invalid entry. For example, if the high limit value is selected as 3ØØØ.Ø and the user selects a low limit value of 3ØØ2.Ø (with a full scale value of 9ØØØ), the following printout will appear:

```
HI LIMIT ADJUST
LO LMT 3ØØ2
```

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The new value for the high limit is equal to the low limit plus Ø.1% of full scale, in this case being 3ØØ3.Ø.

s. When the plug-in program is completed, the user may proceed to program another module (by depressing another channel number) or may place the instrument on line by setting the FUNCTION switch to OPERATE. While on line, the program currently in effect may be obtained by simply depressing the PROG pushbutton.

```
PROGRAM SUMMARY

    CH2
626-PA-6015

  INPUT A
SENS=ØØ.1ØØ V
LO LMT=Ø4.5ØØ V
HI LMT=Ø5.2ØØ V
F.S.=1Ø.ØØØ V

  INPUT B
SENS=ØØ1Ø.Ø PSI          Sensitivity of 1Ø PSI
LO LMT=3Ø34.Ø PSI        Low limit of 3Ø34 PSI
HI LMT=4320.Ø PSI        High limit of 432Ø PSI
F.S.=55ØØ.Ø PSI          Full scale value (1ØV) of 55ØØ PSI

  INPUT C
SENS=ØØ.1ØØ V
LO LMT=Ø4.5ØØ V
HI LMT=Ø5.2ØØ V
F.S.=1Ø.ØØØ V
```

Figure 2-2B. Typical Program Summary Printout, Models 626A,G,R,ARA

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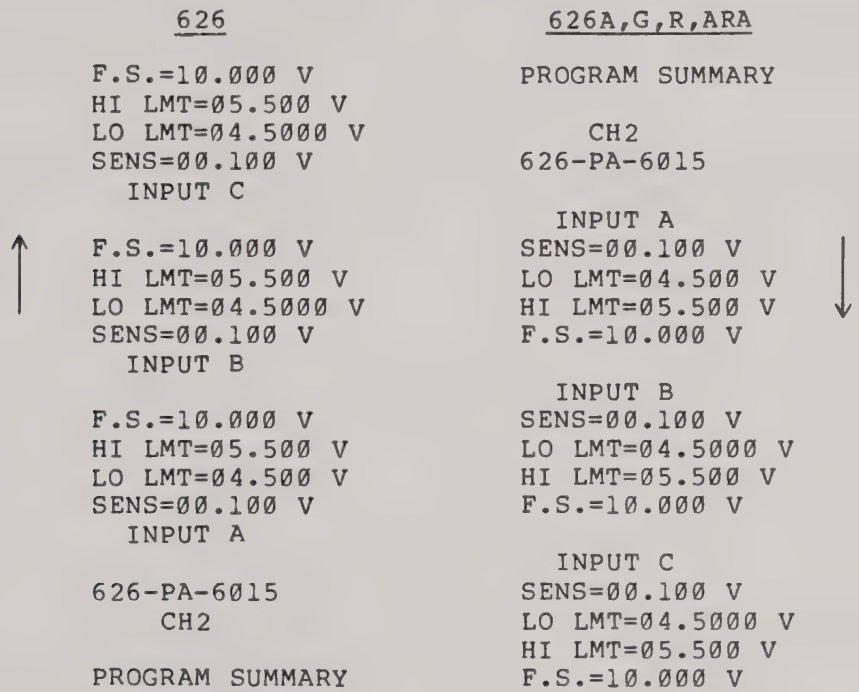
2.5 SELECTING THE FACTORY/OPTION 101 PRESET PROGRAM

NOTE: Customer Preset Option 101 allows the user to choose his/her own program set-up for the PRESET function.

To select the program stored in hard memory, set the FUNCTION switch to PROGRAM and depress the channel number desired. The last operator-set program will be printed out. Now depress the PRESET pushbutton to recall the factory-set program. An example of the factory-set program appears below.



2.6 DESCRIPTION OF DATA PRINTOUTS

2.6.1 Over Limit

An over limit condition exists when the monitored signal eexceeds the user-specified upper limit for the respective input. An over limit condition is indicated by a printout such as the following:

```
4B HI 10:47:12.98
      or
4A HI 10:47:09.76
```

where the 4 is the channel number, the B is for input B (or 2), the A is for the input A (or 1) and the time is given in hours, minutes and seconds (to 0.01 sec resolution).

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When the voltage recovers to normal, a printout such as the following occurs:

626	626A,G,R,ARA
4B NOR 10:55:13.77	6720.9 PSI MAX
0735.3 RPM MAX	4A NOR 11:12:34.21
or	or
4A NOR 11:12:34.21	0735.3 RPM MAX
6720.9 PSI MAX	4B NOR 10:55:13.77

indicating when the normal voltage was restored and the value of the highest scaled value reached during the over limit interval.

2.6.2 Under Limit

An under limit condition exists when the monitored signal goes below the user-specified lower limit. An under limit condition is indicated by a printout such as the following:

4A LO 13:33:23.78
or
4C LO 12:59:00.01

When the voltage returns to normal, a message such as the following is printed:

626	626A,G,R,ARA
4A NOR 13:44:56.98	0.0422 FT MIN
299.17 KG MIN	4C NOR 12:59:58.99
or	or
4C NOR 12:59:58.99	299.17 KG MIN
0.0422 FT MIN	4A NOR 13:44:56.98

indicating when the normal condition was restored and the value of the lowest scaled value reached during the under limit interval.

2.6.3 Voltage Change

A INC/DEC printout is triggered when the voltage changes more than a preselected amount from the last printed value. The change sensitivity is a user programmable value, which is selected independently for each input. The following example shows several input changes. The first is an RPM increase to 0879.3 RPM on input B; the second is a temperature decrease to 13.3 deg C on channel C (both at times shown).

626	626A,G,R,ARA
2C DEC 01:22:34.76	0879.3 RPM
013.30 DEG C	2B INCL 01:23:55.32
2B INCL 01:23:55.32	013.30 DEG C
0879.3 RPM	2C DEC 01:22:34.76

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2.6.4 Data Summary

A printout of the present value, minimum and maximum values and number of over-limit and under-limit events may be triggered manually by depressing the DATA button. This also occurs automatically at midnight.

Figure 2-3A is an example of a DATA summary on a Model 626; figure 2-3B illustrates the printout obtained on a Model 626A.

```
                                    max temperature for day
MAX Ø85Ø.6 DEG C                    number of high-limit events
HIGH Ø23 HT                         min temperature for day
MIN Ø344.8 DEG C                    number of low-limit events
LOW Ø12 HT                          present temperature
PRES=Ø519.6 DEG C
  INPUT C

MAX 1Ø3.89 V
HIGH ØØ3 HT
MIN Ø18.9Ø V
LOW ØØ3 HT
PRES=Ø45.5Ø V
  INPUT B

MAX Ø842.Ø FTC
HIGH Ø45 HT
MIN Ø245.9 FTC
LOW ØØ5 HT
PRES=Ø575.Ø FTC
  INPUT A

626-PA-6Ø15
    CH2

12/19/83   1Ø:46:15
  DATA SUMMARY
```

Figure 2-3A. Typical Data Summary Printout - Model 626

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2.7 PRINTOUT MODES

Printouts showing how various settings of the PRINTOUT MODE switch change the amount of detail in the printed record of the same disturbance sequence are shown in figure 2-4. It is assumed that the disturbances occurred in Input A and that the limits for Input A were programmed as follows:

```
FULL SCALE = 1000.0 FTC
HIGH LIMIT = 0550.0 FTC
LOW LIMIT  = 0250.0 FTC
SENSITIVITY = 0050.0 FTC
```

- -

```
  DATA SUMMARY
12/19/83   10:46:15

     CH2
626-PA-6015

  INPUT A
PRES=0575.0 FTC
LOW 005 HT
MIN 0245.9 FTC
HIGH 045 HT
MAX 0842.0 FTC

  INPUT B
PRES=045.50
LOW 003 HT
MIN 018.90
HIGH 003 HT
MAX 103.89 V

  INPUT C
PRES=0519.6 DEG C          present temperature
LOW 012 HT                 number of low-limit events
MIN 0344.8 DEG C           min temperature for day
HIGH 023 HT                number of high-limit events
MAX 0850.6 DEG C           max temperature for day
```

Figure 2-3B. Typical Data Summary Printout, Models 626A,G,R,ARA

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Unit in MAXIMUM DETAIL

626	626A,G,R,ARA	
2A DEC 04:15.31.87 0504.0 FTC	0504.0 FTC 2A DEC 04:15:31.87	Printout of decrement while within limits
2A NOR 04:13.38.51 0632.0 FTC MAX	0632.0 FTC MAX 2A NOR 04:13:38.51	Printout of return to normal and max value in last excursion
2A DEC 04:10:23.55 0556.0 FTC	0556.0 FTC 2A DEC 04:10:23.55	Printout of decrement while over limit
2A INC 04:08:21.99 0632.0 FTC	0632.0 FTC 2A INC 04:08:21.99	Printout of increment as went over limit
2A HI 04:08:21.99	2A HI 04:08:21.99	Printout of over limit
2A INC 03:54:21.00 0545.0 FTC	0545.0 FTC 2A INC 03:54:21.00	Printout of increment while within limits
2A INC 03:50:57.67 0486.0 FTC	0486.0 FTC 2A INC 03:50:57.67	Printout of increment while within limits
2A DEC 03:39:45.33 0547.0 FTC	0547.0 FTC 2A DEC 03:39:45.33	Printout of decrement while within limits
Unit placed in NORMAL MODE		
2A NOR 04:13:38.51 0632.0 FTC MAX	0632.0 FTC MAX 2A NOR 04:13:38.51	Printout of return to normal and max value in last excursion
2A DEC 04:10:23.55 0556.0 FTC	0556.0 FTC 2A DEC 04:10:23.55	Printout of decrement while over limit
2A INC 04:08:21.99 0632.0 FTC	0632.0 FTC 2A INC 04:08:21.99	Printout of increment as went over limit
2A HI 04:08:21.99	2A HI 04:08:21.99	Printout of over limit
Unit placed in OUT-OF-LIMITS MODE		
2A NOR 04:13.38.51 0632.0 FTC MAX	0632.0 FTC MAX 2A NOR 04:13:38.51	Printout of return to normal and max value in last excursion
2A HI 04:08:21.99	2A HI 04:08:21.99	Printout of over limit

Figure 2-4. Examples of Printout Modes

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Disturbances which occur while the PRINTOUT MODE switch is in the SUMMARY ONLY position do not generate individual printouts but they are stored in the daily accumulator and are automatically printed each day at midnight (worst case event and number of occurrences in each category).

2.8 SHORT TERM ACCUMULATOR

If disturbances should take place at a rate faster than the 626 mainframe can process and print them out, and the internal event stack memory should overflow, then subsequent events until the overflow condition is cleared are stored in summary form in the Short Term Accumulators. These values are cleared out after the printout of the Short Term Accumulators is complete. The format is identical to the Data Summary except that the limit crossing counters and respective maximum or minimums are printed out only if a higher low limit was crossed.

2.9 ASSEMBLING CABLES FOR THE 626-PA-6015

To attach the wires to the pins provided in the accessory bag for use with the 626-PA-6015, AMP tool #90325-1 is recommended. If this tool is not available, the following procedure may be used instead.

1.) Take the 3-conductor twisted pair of red, green, black 24 AWG wires and untwist 2 inches at one end.

2.) Strip the insulation back 1/2" $\pm$ 1/16" and tin the wires.

3.) Insert the wire into the pin until 1/8" of insulation is touching the pin (so edge of insulation is even with the first (outer) set of tabs). Bend these tabs tightly over the insulated wire, one at a time, with a needle-nose pliers.

4.) Bend the inner tabs tightly over the stripped wire, one at a time, with a needle-nose pliers.

5.) Apply a soldering iron to the inner tab. After heating for several seconds, apply a small amount of rosin core solder to the point of contact. Let flow for several seconds and remove the soldering iron. Do not heat too long or the insulation may melt.

6.) Repeat for the remaining 2 wires in the group.

7.) When the pin has cooled, insert the pins into the connectors provided as follows, until a click is felt.

   a. Red wire into hole marked #1.
   b. Black wire into hole marked #2.
   c. Green wire into hole marked #3.

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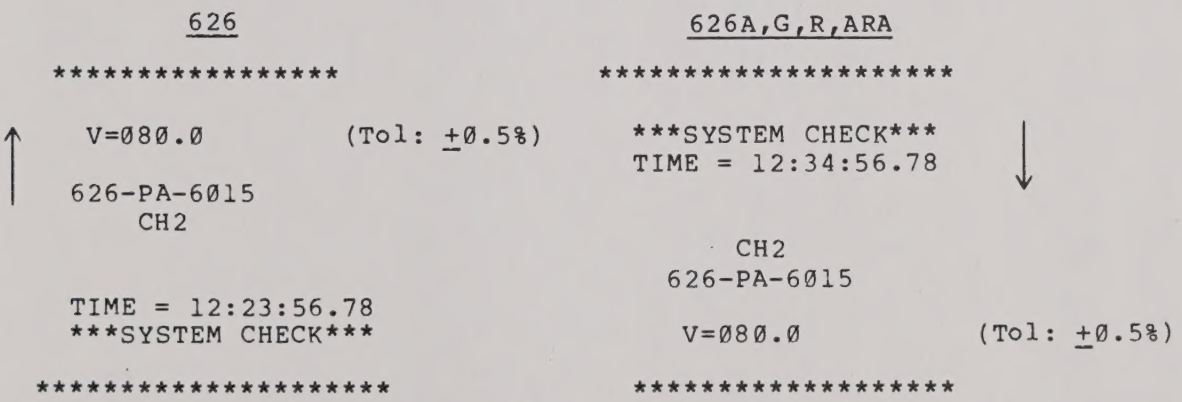
SECTION III
OPERATIONAL CHECK

3.1 GENERAL

This section provides information for performing an operational test to verify that the 6015 plug-in is operating properly.

3.2 SYSTEM CHECK

When the PRINTOUT mode switch is set to SYSTEM CHECK, the precision reference signal is applied to the measuring circuitry. This signal verifies the operational integrity of the module, but not the actual input amplifiers. The amplifiers cannot be checked without sacrificing accuracy and common mode rejection. The allowable tolerance levels are shown below, along with a sample printout:



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